TELUS mobility™

iR1200 Rugged Modem
iR1200 GPS-Enabled Modem

CONFIGURATION GUIDE

TABLE OF CONTENTS

TABLE OF FIGURES **1**

FCC COMPLIANCE **2**

INTRODUCTION **3**

Box Contents 3

Documents Available Online *3*

Required Components for Installation (sold separately) 3

Components for Mobile Environment (sold separately) *3*

Components for Fixed Environment (sold separately) *4*

How to Order Required Components *4*

Required Components for Operation 4

iDEN® Packet Data Applet *4*

Data Account Activation *4*

Customer Care 4

OVERVIEW **5**

General Overview 5

Modem Operating Modes 5

Modem Configurations 5

iR1200 Rugged Modem *6*

iR1200 GPS-Enabled Modem *6*

Modem Specifications 6

MODEM CONFIGURATION **8**

Windows Configurations 8

Windows 95/98/ME *8*

Verify Dial-Up Networking 8

Verify TCP/IP Protocol Installation 8

Installing the Dial-Up Adapter 9

Windows NT/2000 ..... *9*

Verify Dial-Up Networking 9

Verify TCP/IP Protocol Installation 9

Installing the Dial-Up Adapter 10

Windows XP *10*

Installing iDEN® Packet Data Applet 11

Minimum Requirements *11*

Before You Begin *11*

Download iDEN® Packet Data Applet *11*

Windows 95/98/ME 11

Windows NT 14

Windows 2000 and XP 16

Manual Modem Configuration 21

Modem Configuration – Windows 95/98/ME *21*

Install the Modem 21

Configure the Modem Driver 21

Create a Dial-up Networking Connection 22

Modem Configuration – Windows NT *22*
Install the Modem 22
Configure the Modem Driver 23
Create a Dial-up Networking Connection 23
Modem Configuration – Windows 2000 ..... *24*
Install the Modem 24
Create and Configure a Dial-up Networking Connection 25
Modify Dial-up Connection Parameters 25
Modem Configuration – Windows XP *26*
Install the Modem 26
Create and Configure a Dial-up Networking Connection 26
Modem Profiles and Settings 27
Opening a HyperTerminal Session *27*
Configuring with AT Commands 27
Changing Factory Default Image *27*
Restore Factory Defaults [AT&F] *28*
Activate DTR Monitoring [AT&D2] *28*
Activate DCD Management [AT&C1] *28*
Select iDEN® Packet Wireless Data [AT+WS46=24] *28*
Select SLIP [AT+WS45=3] or PPP [AT+WS45=4] *28*
Header Compression [AT+ws182] *29*
Saving AT Settings [AT&W] *29*
AT COMMAND REFERENCE **30**
General AT Commands 30
User Image Profile Commands 30
Network Status Commands 30
Other Useful AT Commands 30
Command Mode Echo [ATe] *30*
Dial [ATd] *31*
Hang-up [ATh] *31*
Request Modem Information [ATi] *31*
Go Online [Ato] *32*
Pulse Dialing [Atp] *32*
Quiet Mode [ATq] *32*
Tone Dialing [ATt] *32*
Verbose Result Codes [ATv] *32*
Extended Result Codes [ATx] *33*
Restore User Defaults [Atz] *33*
DCD Behavior [AT&c] *33*
DTR Behavior [AT&d] *34*
Restore Factory Default [AT&f] *34*
Local Flow Control (Traditional) [AT&k] *34*
Display Current Parameter Value [AT&fv] *35*
Local Character Framing [AT+icf] *35*
Local Flow Control (PCCA) [AT+ifc] *35*
Local Data Rate [AT+ipr] *36*

Lock/Unlock the DCE [AT+wclk] *36*
Change the DCE's PIN [AT+wcpn] *36*
Packet Data Sleep Timer [AT+ws175] *37*
SLIP MTU [AT+wv312] *37*
Select Mobile IP Client [AT+wv300] *37*
Mobile IP Authentication Key [AT+wv301] *37*
Mobile IP Session Timer [AT+wv302] *38*
DTE IP Address Prefix Length [AT+wv311] *38*
DTE Stack [AT+ws45] *38*
WDS Stack [AT+ws46] *39*
Service Class [AT+fclass] *39*
Packet Data Registration Timeout [AT+ws198] *39*
Circuit Data Auto-Answer [ATs0] *39*
Circuit Data Establishment Timeout [ATs7] *40*
Comma Dial Modifier Timer [ATs8] *40*
Circuit Data Idle Timer [ATs30] *40*

S-REGISTERS **41**
S-Registers 41
Programming the S-Register 41
Reading an S-Register Value 41
Supported S-Registers 42

TROUBLESHOOTING **43**
Common Problems 43
Error Messages 44
Diagnostic Commands 44
Extended Error AT Command 45
Extended Error Result Codes 45

SAFETY NOTICE **47**
Safe and Efficient Operation Guidelines 47
Exposure to Radio Frequency Energy 47
Medical and Personal Electronic Devices 47
Pacemakers *47*
Hearing Aids *47*
Other Medical Devices *47*
Interference with Other Electronic Devices 47

INDEX **48**

IMPORTANT!
Please read Safety Notice on page 47 before using the modem.

Last Updated
RFM-4202-5015 Rev 1
JULY 2004
© 2004 TELUS Mobility and the TELUS Mobility logo are registered trademarks of TELUS Corporation.

TABLE OF FIGURES

Table of Figures	Page

Figure 1 - iR1200 GPS-Enabled Modem 5
Figure 2 - Rear Panel of iR1200 Rugged Modem 6
Figure 3 - Rear Panel of iR1200 GPS-Enabled Modem 6

FCC COMPLIANCE

DECLARATION OF CONFORMITY

Per FCC CFR 47 2.989

Responsible party name:	**eLutions, Inc.**
Address:	**5905 Breckenridge Parkway** **Suite F** **Tampa, FL 33610**
Phone number:	**1-800-836-9909**

Hereby declares that the product:

Product name:	**iR1200 GPS-Enabled Modem**
Model Number:	**4200-C5-RFM**
Product name:	**iR1200 Rugged Modem**
Model Number:	**4250-C5-RFM**

Conforms to the following regulation:

FCC Part 15, subpart B
FCC Part 90, subpart S
Class B Digital device

Date: May 16, 2003

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 and 90 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. The equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference or by one or more of the following measures:

-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

INTRODUCTION

This chapter contains information about the required components for successful installation and operation of the iR1200 modem.

Box Contents	Page 3
Documents Available Online	Page 3
Required Components for Installation	Page 3
Components for Mobile Environment	Page 3
Components for Fixed Environment	Page 4
How to Order Required Components	Page 4
Required Components for Operation	Page 4
Communication Software	Page 4
Data Account Activation	Page 4
Customer Care	Page 4

Box Contents

The iR1200 modem ships with the following:

- iR1200 Modem
- Documentation CD
  - Installation Guide
  - Getting Started Guide
  - Warranty Card / Installation and Usage Requirements
- TELUS Service Terms

Documents Available Online

Documentation for the iR1200 consists of two main user's guides, an Installation Guide and Configuration Guide. The Installation Guide is provided to you on the CD that can be found in the box. The Configuration Guide provides detailed instructions on how to install the iDEN® packet data applet and configure the modem to communication within the iDEN® Network. Copies of the Configuration guide can be downloaded from the Product Support page on the www.elutions.com/wireless website.

Required Components for Installation (sold separately)

IMPORTANT: Before you begin installing the iR1200 Rugged Modem or the iR1200 GPS-Enabled Modem, you must obtain the necessary components (each sold separately).

Components for Mobile Environment (sold separately)

Either the iR1200 GPS-Enabled or iR1200 Rugged Modems are typically used for mobile installation environment. The following table lists the components required for this type of installation:

• Approved Cellular Antenna
• Vehicle Power Harness
• Data Cable for computer (laptop/MDT)
• Approved GPS Antenna (for iR1200 GPS Enabled Modem only)

- Data cable for GPS (for iR1200 GPS-Enabled Modem only)

Components for Fixed Environment (sold separately)

The iR1200 Rugged Modem is typically used for fixed installation environment. The following table lists the components required for this type of installation:

- Approved Cellular Antenna
- AC Power Adapter
- Data Cable for computer (laptop/MDT)

IMPORTANT: Use only approved and tested components. The use of unapproved components voids the iR1200 modem warranty.

How to Order Required Components

Components for the iR1200 modem can be ordered through your authorized TELUS Mobility™ dealer, online at www.elutions.com/wireless or by calling eLutions' Wireless Support Center at 1-888-349-4338

Required Components for Operation

In order for you to begin using your modem and connect to the iDEN® network, you must have the following components:

- iDEN® Packet Data Applet
- Activated Data Account with TELUS Mobility™

IMPORTANT: Before you can begin using the iR1200 Rugged Modem or the iR1200 GPS-Enabled Modem in normal mode, you must have an activated data account with TELUS Mobility™.

iDEN â Packet Data Applet

The iDEN® Packet Data Applet must be downloaded and successfully installed on the computer (laptop/MDT) that the modem is connected to. Please refer to the "Installing iDEN® Packet Data Applet" section of this Guide for instructions on how to download and install the data applet.

Data Account Activation

For information on how activate a data account, please contact TELUS' activation team at 1-877-668-3355.

Customer Care

For network or coverage issues contact:

- TELUS' Customer Care Center at 1-877-253-2763

For installation or device issues contact:

- eLutions' Wireless Support Center by phone at 1-888-349-4338 or by email at customersupport@elutions.com

When you call, please have a detailed description of your problem. To provide you with fast and quality support, our Customer Care representative may ask for the following:

- Computer operating system (Windows 95/98/NT/2000/CE/XP)
- Version of the operating system (e.g. NT 4, Windows 95 Version B, CE 2.1, etc.)
- Information regarding the modem (most can found on the diagnostic menu)
- Geographic location of use
- Other configuration settings

OVERVIEW

This chapter contains general production information about the iR1200 modem.

General Overview	Page 5
Modem Operating Modes	Page 5
Modem Configurations	Page 5
Modem Specifications	Page 6

General Overview

The iR1200 Modem is an iDEN® data modem that consists of a modem card and an optional GPS (iR1200 GPS-Enabled Modem) receiver, contained in a rugged enclosure, to provide wireless data communications. The iR1200 modem is easy to mount, whether in a mobile or fixed environment.

Figure 1 - iR1200 GPS-Enabled Modem

Modem Operating Modes

The iR1200 provides the following data connection modes:

- **Packet Data:** A wireless modem connection used for accessing the Internet, sending and receiving e-mail, and transferring small files over the packet data network using standard IP protocols.

  Data is sent in packets (blocks) of data at high speed.

- **Circuit Switched Data:** A wireless modem connection for sending and receiving data (faxes, files, etc.) over the circuit-switched cellular channel, providing a direct point-to-point connection with the destination device.

Modem Configurations

eLutions offers two models of the iR1200 Modem. Both are designed to provide wireless communication for rugged environments. The distinction between the two models is the optional GPS feature.

The iR1200 modem can be purchased with the following configurations:

- **iR1200 Modem (Base Model) -** Available in bulk or individual packaging
- **iR1200 GPS-Enabled Modem -** Available in bulk or individual packaging

iR1200 Rugged Modem

The following diagram displays the components that exist on the rear panel of the iR1200 Rugged Modem.

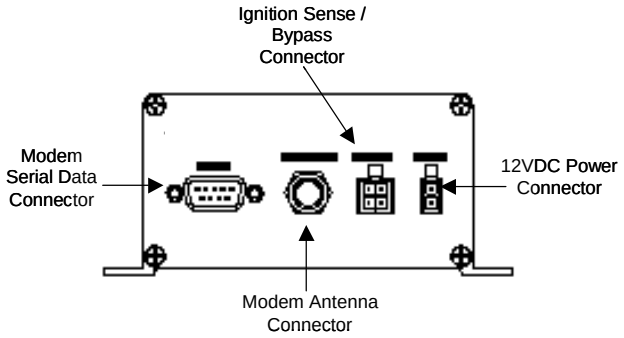


Figure 2 - Rear Panel of iR1200 Rugged Modem

iR1200 GPS-Enabled Modem

The following diagram shows the components that exist on the rear panel of the iR1200 GPS-Enabled Modem.

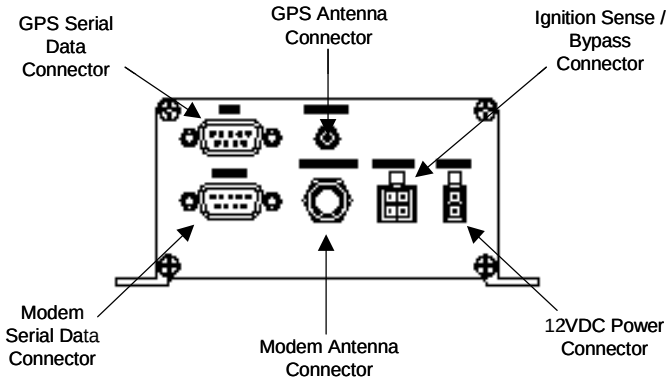


Figure 3 - Rear Panel of iR1200 GPS-Enabled Modem

Modem Specifications

Transmission Modes	Circuit-Switched, Packet Data & Hayes AT Commands
Rugged metal enclosure	Extruded Aluminum
Status monitoring LED	One bi-color LED for operating status
External Modem Software	User to utilize Windows drivers
Internal Modem Software	Micro controller firmware
Radio Frequency	Tx 806-821 MHz Rx 851-866 MHz
TX Output Power	0.6 W at 25 degrees C
Static Sensitivity	-111dbm @ -10% BER
Input Voltage	12VDC nominal, 10 to 16 VDC operating range
Current Consumption	0.1 Amps steady state, 1.5 Amps peak transient
Dimensions	Approximately 5.04"W x 2.21"H x 7"D
Weight	Approximately 600 grams

Data Connector	DB-9 for modem, DB-9 for GPS (optional)
Power and Ignition Connectors	Molex 39-01-2020 with 39-00-0186 pins
Operating Temperature	-25 degrees C to +60 degrees C
Storage Temperature	-40 degrees C to +85 degrees C
Humidity	0-95% non-condensing
Vibration	per TIA/EIA 603 par 3.3.4
Shock	per MIL-STD-810E, method 516.4, procedure I
Dust/Water Resistance	Dust per MIL-STD-810E, method 510.3, procedure I Water per MIL-STD-810E, method 506.3, procedure II
Master Reset	Yes
LED Lights/Indicators	6 Single color LEDs for modem RS-232 signal status (TX, RX DR, DSR, CTS, RTS per RS-232-C/E Specifications)
GPS Receiver	8 channel, NMEA 0183 protocol
Antenna Connectors	Mini UHF female for modem and MCX female for GPS
Internal monitoring with self-reset capability	Yes, field support diagnostic screen provided and self-reset

MODEM CONFIGURATION

In this chapter, you will learn how to set up your windows components, install the iDEN® Packet Data Applet, and configure the iR1200 modem to operate with the iDEN® network.

Windows Configurations	Page 8
Windows 95/98/ME	Page 8
Windows NT/2000	Page 9
Windows XP	Page 10
Installing iDEN® Packet Data Applet	Page 11
Minimum Requirements	Page 11
Before You Begin	Page 11
Download iDEN® Packet Data Applet	Page 11
Manual Modem Configuration	Page 21
Windows 95/98/ME	Page 21
Windows NT	Page 22
Windows 2000	Page 24
Windows XP	Page 26
Modem Profiles and Settings	Page 27
Configuring with AT Commands	Page 28

Windows Configurations

Windows 95/98/ME

Verify Dial-Up Networking

The following steps describe how to verify if dial-up networking is installed on your computer.

1. From your desktop, double-click the **My Computer** icon to open the **My Computer** window.
2. Double-click the **Dial-Up Networking** icon to open **the Dial-Up Networking** window.
3. Double-click the **Make New Connection** icon. The **Make New Connection** window should appear, indicating that dial-up networking is installed.
4. Click **Cancel** to close the **Make New Connection** window.

Verify TCP/IP Protocol Installation

The following steps describe how to verify if TCP/IP Protocol and Dial-up Adapter are installed on your computer.

1. From your desktop, double-click the **My Computer** icon to open the **My Computer** window.
2. Double-click the **Control Panel** icon to open the **Control Panel** window.
3. Double-click the **Network** icon to open the **Network** window.
4. Scroll down the list to find **TCP/IP Dial-Up Adapter**.
5. If you see **TCP/IP à Dial-Up Adapter** in the list, click **OK**; you have TCP/IP installed and can proceed with installation.
6. If you do not see **TCP/IP à Dial-Up Adapter** in the list, you will need to add the TCP/IP protocol. Click **Add** and

proceed with the remaining instructions.

7. The **Select Network Component Type** window opens. Highlight **Protocol** and then click **Add**.
8. The **Select Network Protocol** window opens. Under **Manufacturer**, select **Microsoft**. Under **Network Protocol**, select **TCP/IP**. Click **OK**.
9. The **TCP/IP Dial-Up Adapter** appears in the list.
10. If the **Dial-Up Adapter** appears in the **Network Adapters** list, it is installed. You may proceed with installation.
11. If the **Dial-Up Adapter** does not appear in the **Network Adapters** list, you do not have a Dial-Up Adapter installed. Refer to instructions for installing Dial-Up adapter.
12. Click **OK** to close the **Select Network Protocol** window.

Installing the Dial-Up Adapter

The following steps describe how to install the Dial-Up Adapter on your computer.

1. From the **Select Network Adapter** window, highlight **Dial-Up Adapter** in the **Network Adapters** list.
2. Under **Manufacturers**, highlight **Microsoft**. Click **OK**.
3. The **Select Network Component Type** window opens. Highlight **Adapter**. Click **Add**.
4. The **Select Network Adapters** window opens.
5. To verify that the adapter was added, from **Start**, select **Settings**.
6. Select **Control Panel**.
7. Click **Network**.
8. Look for **Dial-Up Adapter** on the **Network Configuration** screen.

NOTE: If it is determined that your computer does not have dial-up networking, please proceed to the "Manual Modem Configuration" for instructions for how to install dial-up networking.

Windows NT/2000

NOTE: Windows 2000 and XP users must be logged in as the Administrator of the local machine.

Verify Dial-Up Networking

The following steps describe how to verify if dial-up networking is installed on your computer.

1. From your desktop, double-click the **My Computer** icon to open the **My Computer** window.
2. Double-click the **Dial-Up Networking** icon to open the **Dial-Up Networking** window.
3. The **Dial-Up Networking** window opens and displays the **Phone book entry** to dial heading.
4. If the **Dial-Up Networking** window displays the **Install prompt** then dial-up networking has not been installed.
5. Click **Close** to close the **Dial-Up Networking** window.

Verify TCP/IP Protocol Installation

The TCP/IP protocol is automatically installed as the default protocol for most Windows installation. However, for some Windows NT and 2000 installations, TCP/IP may not have been included.

The following steps describe how to check that TCP/IP is in fact installed, and if necessary add the TCP/IP protocol.

NOTE: This may require that you contact your IT Representative or System Administrator.

1. From your desktop, select **Start à Settings à Network** and **Dialup Connections à Local Area Connection**. The **Local Area Connection** window opens.
2. Click the **Properties** button on the **Local Area Connection** window.
3. Is the **Internet Protocol** listed under the **Components** listing?
4. If the **Internet Protocol** is not listed, click the **Install** button. The **Select Network Component Type** window opens.
5. Under **Network Component Type** listing, highlight **Protocol** and click **Add**.
6. The **Select Network Protocol** window opens. Under **Network Protocol** listing, highlight **Internet Protocol** and click **OK**.
7. The installation will now begin — **IMPORTANT**: If prompted, do NOT select restart.

Installing the Dial-Up Adapter

The Dial-Up Adapter may not have been included in the standard installation. The following steps describe how to check that TCP/IP is in fact installed, and if necessary add the TCP/IP protocol.

NOTE: This may require that you contact your IT Representative or System Administrator.

1. Select **Start à Settings à Control Panel**. The **Control Panel** window opens. Double click on **Network and Dial up Connections.**
2. The **Network and Dial up Connections** window opens. Double click on **Make New Connection**, which brings up the connection wizard. Click **Next**.
3. Select **I want to set up my Internet connection manually**, then click on **Next**.
4. Select **I connect through a phone line and a modem** then click on **Next**.
5. Enter the new phone number as follows:
   - Packet Data enter: **s=2**
   - Circuit Switched enter: **ISP Phone Number**
   - Click on the **Advanced** button.
6. The **Advance Connection Properties** window opens. On the Connection tab, select **PPP** and for **Logon procedure** select **None**.
7. Click on the **Addresses** tab. Select **My ISP automatically provides...** Click on **OK** to return to the phone number screen. Click on **Next** to continue.
8. Enter your username and password then click **Next**.
9. Enter a connection name such as "*iR1200 Modem*" or "*iDEN Connection*" and then click **Next**.
10. Select **No** and click **Next**. Click on **Finish** to complete the setup.

NOTE: If it is determined that your computer does not have dial-up networking, please proceed to the "Manual Modem Configuration" for instructions on how to install dial-up networking.

Windows XP

IMPORTANT: Dial-up Networking is installed on Windows ME, 2000 and XP automatically. You will only need to verify that the modem has been installed and is working correctly to create a dial-up connection.

Installing iDENâ Packet Data Applet

Minimum Requirements

To run the installation program, you will need the following:

- An IBM® compatible PC with:
  - 586 (or higher) processor
  - Microsoft® Windows 95, 98, NT or 2000, XP
  - Minimum 8 MB of addressable RAM
  - 3 MB free hard-disk space
- Recommended: Mouse or compatible pointing device
- Communication software
- Standard Internet browser (such as Internet Explorer or Netscape)
- An active account with TELUS (for connection to the iDEN® network)

Before You Begin

Windows must have a Dial-up Networking Version 1.3 or later and the TCP/IP protocol Installed.

NOTE: If the version of your Dial-up Networking is earlier than v1.3, please consult your Systems Administrator.

IMPORTANT: Before proceeding, please check that your computer has a network card or security program that prevents IP address changes.

- Windows Dial-Up Networking version 1.3 or higher installed (refer to the "Manual Modem Configuration" chapter in this guide for installation instructions)
- TCP/IP installed (refer to the "Setup Windows Components" chapter in this guide for installation instructions)
- Dial-Up Adapter installed (refer to the "Setup Windows Components" chapter in this guide for installation instructions)

Download iDENâ Packet Data Applet

The iDEN® Packet Data Applet configures your computer to receive packet data services. It also monitors the service and provides service status information such as battery status and signal strength.

Windows 95/98/ME

The following steps describe how to download and install the iDEN® Packet Data Applet on a Windows 95/98/ME operating system.

1. You can access the link to the **iDEN® Packet Data Applet** by going to **www.elutions.com/wireless** website.
2. From the **eLutions** wireless website, click on the **Product Support** link, to navigate to the Product Support page.
3. From the **Product Support** page, scroll down and click on the **iDEN® Packet Data Applet** link.
4. The **iDEN® Packet Data Applet** page appears.
5. From the **iDEN® Packet Data Applet** screen, click on the **Download** button next to the iDEN® Packet Data Applet section to download the software

1. The **File Download** window appears. Click on the **Save** button to continue. The download program will copy the files that are needed to install the software to the appropriate location on your computer.

IMPORTANT: When you have finished downloading the program, you MUST connect the data cable to your modem and computer before proceeding further.

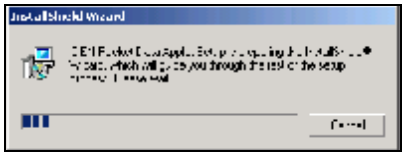
2. Find the program in the appropriate folder and double-click the **Setup.exe** to launch the program to initiate the installation process.

NOTE: The setup.exe will be contained in a zip or compressed file.

à à à

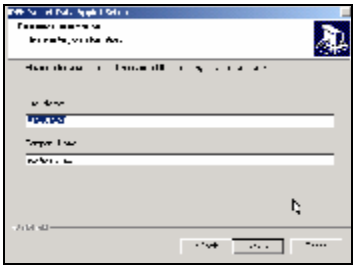
3. Click **Next** to accept the default **Program Folder, iDEN Data Modem Applet**. The installation program starts, a status window opens while the files are copying.

4. The **Installshield Wizard** screen appears during the setup process.

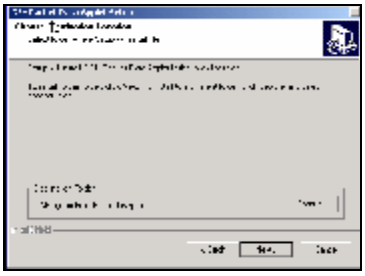


5. Click **Next** on the **iDEN Packet Data Applet Setup** screen.

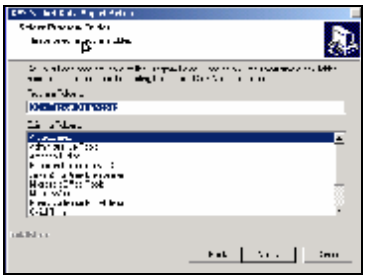
6. The **Customer Information** window opens. Enter your name and company then click **Next**.



7. The **Choose Destination Location** window opens. Click **Next** to accept the default destination folder, C:\Program Files.

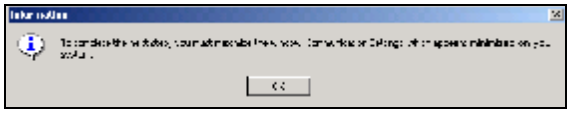


8. The **Select Program Folder** window opens. Click **Next** to accept the default program folder, iDEN® Packet Data Applet.



9. After the files are copied, the **Question** window opens. Click **Yes** to add a shortcut to your taskbar then click **OK** to continue.

10. Click **OK** to the message stating that you "**must maximize the 'Communication Settings' window…**".



11. Click **Communication Settings** on your taskbar to maximize the window. The **Communication Settings** window opens.

NOTE: Check to make sure that your modem is turned on and connected to your computer before continuing with the installation.

12. Select the following value on the **Communication Settings** window:
    - Click the **Auto Detect** to have the software automatically check for the COM Port or select the appropriate COM Port (typically COM1)
    - **Multiple Baudrate** should be **unchecked**
    - Baud Rate: **19200** (bps)

    The program will check the communication settings and attempt to connect to the modem.
13. The Packet Data Configuration window opens. Select **No, I would like to configure my modem later or my modem has already been configured** then click **Next**.
14. The **Installation Complete** window opens. Select **Finish** on the following screens to complete the installation process.
15. The **Setup Complete** window opens. Click **Finish**.

Windows NT

The following steps describe how to download and install the iDEN® Packet Data Applet on a Windows NT operating system.

NOTE: Administrative rights are required to install the software on Windows NT. Contact your IT Representative or Systems Administrator for assistance.

1. You can access the link to the **iDEN® Packet Data Applet** by going to **www.elutions.com/wireless** website.
2. From the **eLutions** wireless website, click on the **Product Support** link, to navigate to the Product Support page.
3. From the **Product Support** page, scroll down and click on the **iDEN® Packet Data Applet** link.
4. The **iDEN® Packet Data Applet** page appears.
5. From the **iDEN® Packet Data Applet** screen, click on the **Download** button next to the iDEN® Packet Data Applet section to download the software
6. The **File Download** window appears. Click on the **Save** button to continue.
7. The download program will copy the files that are needed to install the software to the appropriate location on your computer.

   IMPORTANT: When you have finished downloading the program, you MUST connect the data cable to your modem and computer before proceeding further.
8. Find the program in the appropriate folder and double-click the **Setup.exe** to launch the program to initiate the installation process.

   NOTE: The setup.exe will be contained in a zip or compressed file.

9. Click **Next** to accept the default Program Folder, **iDEN® Data Modem Applet**. The installation program starts, a status window opens while the files are copying.

10. Click **Next** on the **iDEN® Packet Data Applet Setup** screen.

11. The **Customer Information** window opens. Enter your name and company then click **Next**.

12. The **Choose Destination Location** window opens. Click **Next** to accept the default destination folder, C:\Program Files.

13. The **Select Program Folder** window opens. Click **Next** to accept the default program folder, iDEN® Packet Data Applet.

14. After the files are copied, the **Question** window opens. Click **Yes** to add a shortcut to your taskbar then click **OK** to continue.

15. An additional Information window opens. Click **OK** to continue with the installation.

16. The **Add/Remove Hardware** window opens. Click **the Don't Detect my modem; I will select it from a list of checkbox** then click **Next**.

17. The **Modem Selection** window opens. From **Manufacturers** list box, locate and select **Motorola** and **Motorola iDEN® plus Series** then click **Next**.

18. The **Port Selection** window opens. Highlight the COM port that your modem is connected and click **Next**.

19. The **Modem Installation Finish** window opens. Click **Finish**.

20. The **Information** window opens indicating that you need to add the modem to the RAS manager and reboot the computer. Click **OK** to continue.

21. The **Network Configuration** window opens. Select the **Services** tab.

22. The **Network Services Selection** window opens. Highlight the **Remove Access Service** and click **Properties**.

23. The **Remove Access Service** window opens. Click **Add**.

24. The **RAS Device** window opens. Verify that the correct COM port is displayed in the RAS Capable Device box then click **OK**.

    NOTE: If the Motorola iDENâ plus Series modem is not displayed in the RAS Capable Device box, click the Install Modem button to install the modem again.

25. The **Remote Access Setup** window now displays the added COM port.

26. From the **Remote Access Setup** window, highlight the COM port/Device that was just added and click **Configure**. The **Configure Port Usage** window opens. Click on the **Dial out only** radio button then click **OK**.

27. The **Remote Access Setup** window opens. Click **Continue**.

28. Click **Close** to the **Network Services Selection** window.

29. Click **Finish** on the **iDEN® Packet Data Applet Setup** window.

30. The **Network Settings change/Computer Restart** window opens. Click **Yes**.

31. The **Installshield Wizard** window will appear once program has completed the restart process. Click **Reinstall Packet Data Applet** icon to proceed with the installation.

    NOTE: Check to make sure that your modem is turned on and connected to your computer before continuing with the installation.

32. Select the following value on the **Communication Settings** window:

- Click the **Auto Detect** to have the software automatically check for the COM Port or select the appropriate COM Port (typically COM1)
- **Multiple Baud rate** should be **unchecked**
- Baud Rate: **19200** (bps)

The program will check the communication settings and attempt to connect to the modem

33. The **Packet Data Configuration** window opens. Select **No**, **I would like to configure my modem later or my modem has already been configured** then click **Next**.

34. The **Installation Complete** window opens. Select **Finish** on the following screens to complete the installation process.

35. The **Setup Complete** window opens. Click **Finish**.

Windows 2000 and XP

The following steps describe how to download and install the iDEN® Packet Data Applet on a Windows 2000 or XP operating system.

NOTE: Administrative rights are required to install the software on Windows 2000. Contact your IT Representative or Systems Administrator for assistance.

1. You can access the link to the **iDEN® Packet Data Applet** by going to **www.elutions.com/wireless** website.

2. From the **eLutions** wireless website, click on the **Product Support** link, to navigate to the Product Support page.

3. From the **Product Support** page, scroll down and click on the **iDEN® Packet Data Applet** link.

4. The **iDEN® Packet Data Applet** page appears.

5. From the **iDEN® Packet Data Applet** screen, click on the **Download** button next to the iDEN® Packet Data Applet section to download the software

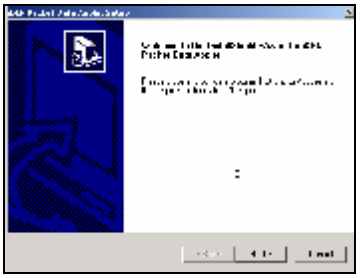
6. The **File Download** window appears. Click on the **Save** button to continue. The download program will copy the files that are needed to install the software to the appropriate location on your computer.

IMPORTANT: When you have finished downloading the program, you MUST connect the data cable to your modem and computer before proceeding further.

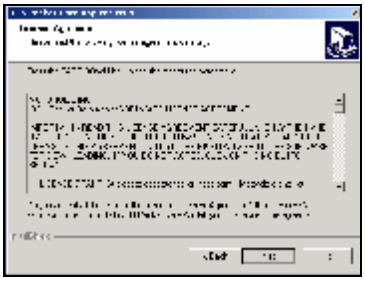
7. Find the program in the appropriate folder and double-click the **Setup.exe** to launch the program to initiate the installation process.

NOTE: The setup.exe will be contained in a zip or compressed file.

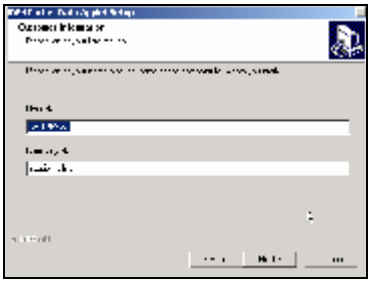
8. Click **Next** on the **Welcome to the Installshield Wizard** for **iDEN® Packet Data Applet** window.



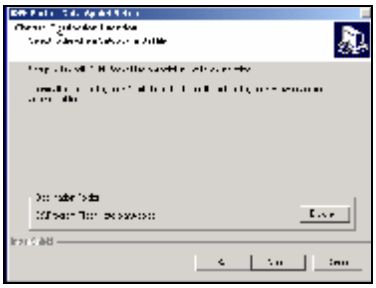
9. The **License Agreement** window appears. Scroll through to read the licensing information than click **Yes** to continue with the installation.



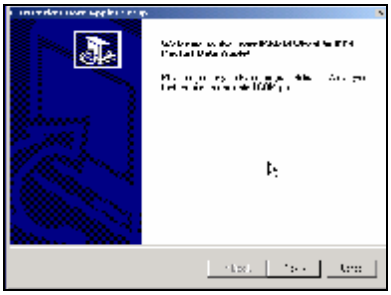
10. The **iDEN® Packet Data Applet Setup** window appears. Enter Username and Company information and click **Next**.



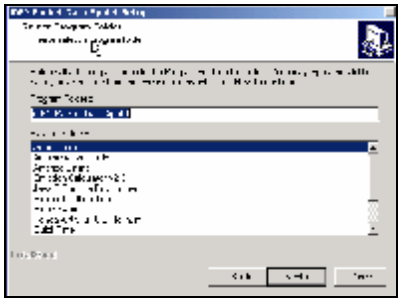
11. On the **Chose Destination Location** window, click **Next** to accept the file location where the applet will be installed. Otherwise select Browse to specify a different file location.



12. The **Installshield Wizard** screen appears during the setup process. Click **Next** on the **iDEN® Packet Data Applet Setup** screen.



13. Click **Next** to accept the default Program Folder, iDEN® Data Modem Applet. The installation program starts, a status window opens while the files are copying.



14. After the files are copied, the **Question** window opens. You will be asked if you would like to add the shortcut to your Windows desktop. Select **Yes** to add the shortcut

15. Click **OK** to the next Information window.

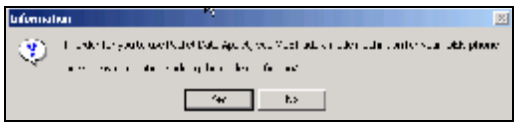
NOTE: Check to make sure that your modem is turned on and connected to your computer before continuing with the installation.

16. Select the following value on the **Communication Settings** window:

- Click the **Auto Detect** to have the software automatically check for the COM Port or select the appropriate COM Port (typically COM1)
- **Multiple Baudrate** should be **unchecked**
- Baud Rate: **19200** (bps)

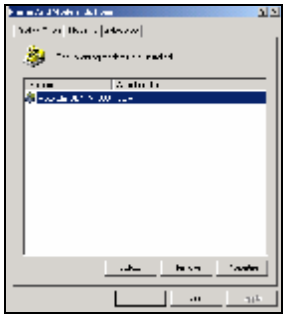
The program will check the communication settings and attempt to connect to the modem.

17. Click **Yes** to the **Information** window to continue. An additional Information window opens. Click **OK**.

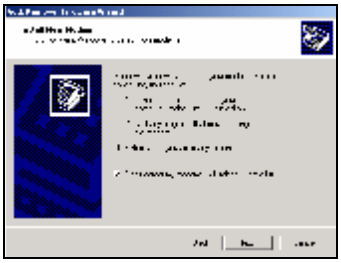


à à

18. The **Phone and Modem Options** window opens with the Modems tab selected. Click **Add**.

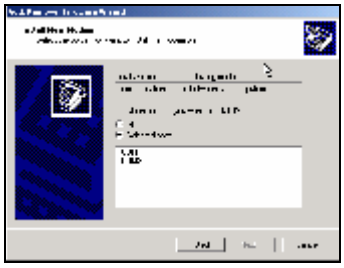


19. The **Add/Remove Hardware** window opens. Click the **Don't Detect my modem; I will select it from a list of checkbox** then click **Next**.



20. The **Modem Selection** window opens. From **Manufacturers** list box, locate and select **Standard Modem Types** and **Standard 19200 bps Modem** then click **Next**.

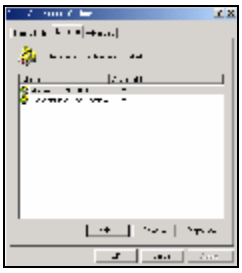
21. The **Port Selection** window opens. Highlight the COM port (typically COM1) that your modem is connected and click **Next**.



22. The **Install New Modem** screen will appear while the modem is being detected. A message stating that the modem has been set up successfully will appear. Click **Finish**.

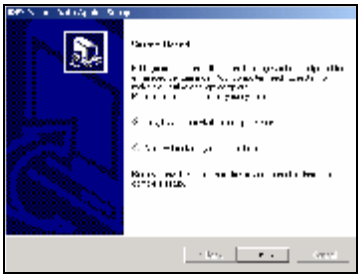
à à à

23. The **Phone and Modem Options** window reopens with the **Modems** tab selected. Verify that the Standard 19200 bps Modem appears on the list. Click **OK**.



24. The **Installshield Wizard Complete** window opens. Select **Finish** on the following screens to complete the installation process.

25. The **System Reset** window appears. Select **Yes, I want to restart my computer now** radio button then click **Finish**.



26. The **Installshield Wizard Complete** window opens. Click **Finish** to complete the installation.

Manual Modem Configuration

This section describes how to manually add a modem, configure the modem drivers and create a dial-up networking connection for iDEN®. This is an optional process and only required if the computer's Windows environment is not properly configured.

NOTE: Use these instructions only if you did not previously install the iDEN® Packet Data Applet.

Modem Configuration – Windows 95/98/ME

Install the Modem

1. Go to **Start à Settings à Control Panel** and click on the **Modems** icon.
2. The **Modem Properties** window opens. Select the **General** tab and click **Add**.
3. The **Install New Modem** window opens. Select **Other**. Click **Next**.
4. The **Install New Modem/Hardware Installation** window opens. Check the **Don't run the Hardware Installation Wizard** box. Click **Next**.

   NOTE: If this option is not available, proceed to the next step.
5. The **Install New Modem/Modem Detection** window opens. Check the **Don't detect my modem; I will select from a list** box. Click **Next**.
6. The **Install New Modem/Modem Selection** window opens. Under **Manufacturer**, select **Standard Modem Types. Under Models**, click **Standard 19200 bps Modem**. Click **Next**.
7. Select the COM port that you will be using to connect to the modem (i.e., COM1, COM2, or COM3), then click **Next**.

   NOTE: If you are not sure which COM port to use, begin with COM1. If you are unable to connect to a network using COM1, you will need to reinstall the modem after attaching the modem to a different COM port.
8. The **Install New Modem/Modem Installation Finish** window opens. Click **Finish**.
9. Continue with the steps to Configure the Modem Driver.

Configure the Modem Driver

1. From the **Modems Properties** window, select **Standard 19200 bps Modem**. Click **Properties**.
2. The **Standard 19200 bps Modems Properties** window opens. On the **General** tab, confirm the Maximum Speed is **19200** bps.
3. Click the **Connection** tab and verify the following settings:
   - Data Bits: **8**
   - Parity: **None**
   - Stop Bits: **1**

   Click **Advanced**.
4. The **Advanced Connection Settings** window opens. If they are not selected already, select the following:
   - **Use Flow Control** and
   - **Hardware (RTS/CTS)**
   - If the Duplex option is present, select **Full**.
5. Click **OK** to close the **Advanced Connection Settings** window.
6. Click **OK** (or **Close**) to close the **Standard 19200 bps Modem's Properties** window.
7. Click **Close** to close the **Modem's Properties** window.

8. Click **Close** to close the **Control Panel**.
9. Continue with the steps to Create a Dial-Up Networking Connection.

Create a Dial-up Networking Connection

1. With the **My Computer window** open, double-click the **Dial-Up Networking** icon.
2. The **Dial-Up Networking** window opens. Double-click **Make New Connection**.
3. The **Make New Connection** window opens. Enter a name for the connection, such as "*iR1200 Modem*". Under **Select a device**, use the drop-down box to locate and select **Standard 19200 bps Modems**. Click **Next**.
4. The **Make New Connection** window changes and now displays fields for entering the phone number. Delete any information contained in the **Area Code** box.
   - For Packet Data: At Telephone number: E**nter s=2.**
   - For Circuit Switched Data: **Enter the ISP phone number.**

   Click **Next** to continue.
5. The **Setup Finish** window opens, click **Finish**. This procedure creates the iR1200 Modem icon in the **Dial-Up Networkin**g window.
6. In the **Dial-Up Networking** window, right click **iR1200 Modem**. Click **Properties**.
7. The **iR1200 Modem Network** window opens. Click the **Server Types** tab.

   NOTE: For packet data, country code and area code (under the General Tab) should always be blank to allow s=2 to be the telephone number.
8. Under **Type of Dial-Up Server**, select **PPP**.
9. Under **Allowed Network Protocols**, ensure that the box next to **TCP/IP** is checked.
10. **Remove** the **check marks** from all other selection boxes.
11. Click the **TCP/IP** button.
12. The **TCP/IP Settings** window opens. Ensure that the following are **checked**:
    - Server assigned IP address
    - Server assigned name server addresses
    - Use IP header compression
    - Use default gateway on remote network

    All other boxes should remain **unchecked**. Click **OK**.
13. Click **OK** to complete the set up.

Modem Configuration – Windows NT

Install the Modem

1. Go to **Start à Settings à Control Panel** and click on the **Modems** icon.
2. The **Modems Properties** window opens. Under the **General** tab click **Add.**
3. The **Install New Modem** window opens. Select **Othe**r then **Next**.
4. The **Install New Modem/Hardware Installation** window opens. Check the **Don't run the Hardware Installation Wizard** box. Click the **Next** button.

   NOTE: If this option is not present, proceed to the next instruction.

5. The **Install New Modem/Modem Detection** window opens. Check the **Don't detect my modem; I will select it from a list** box. Click **Next**.
6. The **Install New Modem/Modem Selection** window opens. Under **Manufacturer**, select **(Standard Modem Types).** Under **Models**, click **Standard 19200 bps Modem**. Click **Next**.
7. The **Port Selection** window opens. Highlight the COM port that you will be using to connect to the phone. Click **Next**.
8. The **Modem Installation Finish** window opens. Click **Finish**.
9. The **Modems Properties** window reappears with the newly added Standard 19200 bps modem displayed in the dialog box. Click **Close**.
10. The following message appears: **Dial-Up Networking needs to be configured because the list has changed. Do you wish to reconfigure?** Click **Yes**.
11. The **Remote Access Setup** window opens. Click **Add**.

    NOTE: In Windows NT, only one modem can be installed per COM port. If you are attempting to install the Standard 19200 bps modem on a COM port to which another modem is directed, you must choose an alternate COM port or remove the other modem before proceeding. Otherwise a conflict will occur and Windows NT will not recognize the Standard 19200 bps modem.

12. The **Add RAS Device** window opens. Make sure the proper COM port for your modem connection is selected. Click **OK**.
13. The **Remote Access Setup** window now shows the added COM port. Click **Continue.** The system automatically configures the appropriate settings.
14. Continue with the steps to Configure the Modem Driver.

Configure the Modem Driver

1. From the **Modems Properties** window, select the **Standard 19200 bps Modem**. Click **Properties**.
2. The **Standard 19200 bps Modems Properties** window opens. On the **General** tab, confirm the **Maximum Speed** is **19200** bps.
3. Click the **Connection** tab and verify the following settings:
   - Data Bits: **8**
   - Parity: **None**
   - Stop Bits: **1**

   Click **Advanced**.
4. The **Advanced Connection Settings** window opens. If they are not selected already, select the following:
   - **Use Flow Control** and
   - Hardware (RTS/CTS)
   - If the **Duplex** option is present, select **Full.**
5. Click **OK** to close the **Advanced Connection Settings** window.
6. Click **OK** (or **Close**) to close the **Standard 19200 bps Modems Properties** window.
7. Click **Close** to close the **Modem's Properties** window.
8. Click **Close** to close the **Control Panel**.
9. Continue with the steps to Create a Dial-Up Networking Connection.

Create a Dial-up Networking Connection

1. With the **My Computer** window open, double-click the **Dial-Up Networking** icon.

2. The **Dial-Up Networking** window opens. Click **New**.
3. The **New Phonebook Entry Wizard** window opens. Enter a name for the phonebook entry such as "iR1200 Modem". Click **Next.**
4. The **Server** window opens. Check the box next to **I am calling the Internet**. Click **Next**.
5. The **Modem or Adapter** window opens. Select the **Standard 19200 bps Modem**. Click **Next**.
6. The **Phone Number** window opens. In the **Phone number** box, enter the following:
   - For Packet Data: **s=2**
   - For Circuit Switched Cellular: **ISP Phone Number**.

   Click **Next**.
7. The **Wizard Finish** window opens. Click **Finish**.
8. The **Dial-Up Networking Phonebook** window opens with the **iR1200 Modem** entry displayed. Click **More** and select **Edit entry and modem properties** from the drop-down list.
9. The **Edit Phonebook Entry** window displays. Click the **Server** tab.
10. In the **Dial-up server type,** select **PPP**. Under **Network protocols**, check the box next to **TCP/IP**. Remove the check marks from all other selection boxes. Click the **TCP/IP** button.
11. The **PPP TCP/IP Settings** window opens. Ensure that the following are **checked**:
    - Server assigned IP address
    - Server assigned name server addresses
    - Use IP header compression
    - Use default gateway on remote network
12. All other boxes should remain unchecked. Click **OK**.
13. Click **OK** to complete the set up.

Modem Configuration – Windows 2000

Install the Modem

1. Go to **Start à Settings à Control Panel** and click on the **Phone and Modem** icon.
2. The **Phone and Modem Options** window opens. Click the **Modems** tab.
3. The **Modems** window opens. Click **Add**.
4. The **Install New Modem** window opens. Check the **Don't detect my modem; I will select it from a list box** then click **Next**.
5. The **Modem Detection** window opens. Under **Manufacturer**, select (**Standard Modem Types**). Under **Models**, click **Standard 19200 bps Modem**. Click **Next**.
6. The **Port Selection** window opens. Highlight the COM port that you will be using to connect to your modem (i.e., COM1, COM2, COM3, etc.). Click **Next**.
7. The **Digital Signature Not Found** window opens. Click **Yes** to proceed.
8. The **Modem Installation Finish** window opens. Click **Finish**.
9. The **Modems** window reappears with the newly added Standard 19200 bps modem displayed in the dialog box. Click **OK**.

Create and Configure a Dial-up Networking Connection

1. From the computer's desktop, double-click the **My Computer** icon. Then, double-click the **Control Panel** icon.
2. The **Control Panel** window opens. Double-click on the **Network and Dial-up Connections** icon.
3. The **Network and Dial-up Connections** window opens. Double-click on **Make New Connection**.
4. The **Network Connection Wizard** window opens. Click **Next**.
5. The **Network Connection Type** window opens. Select **Dial-up to the Internet** and click **Next**.
6. The **Welcome to the Internet Connection Wizard** opens. Select **I want to set up my Internet connection manually, or I want to connect through a Local Area Network (LAN)** and click **Next**.
7. The **Setting up your Internet connection** window opens. Select **I connect through a phone line and a mode**m and click **Next**.
8. The **Choose Modem** window opens. From the drop-down box, select **Standard 19200 bps Modem** and click **Next**.
9. The **Internet Connection, Step 1** window opens. Enter a temporary telephone number (this phone number will be modified in Modem Properties later in the configuration). Make sure that the Use area code and dialing rules is NOT checked. Click **Advanced**.
10. The **Advanced Connection Properties** window opens with the **Connection** tab selected. Verify the following settings:

    Under Connection type:

    - PPP (Point-to-Point Protocol) – **should remain checked**
    - Disable LCP Extensions – **should remain checked**
    - SLIP – **should remain unchecked**
    - C-SLIP – **should remain unchecked**

    Under Logon procedure:

    - None – **should remain checked**
    - Log on manually – **should remain unchecked**
    - Use logon script – **should remain unchecked**
11. Click the **Addresses** tab and verify the following settings:

    Under IP address:

    - Internet service provider automatically provides one – **should remain checked**
    - Always use the following – **should remain unchecked**

    Under DNS server address:

    - My ISP automatically provides a DNS address – **should remain checked**
    - Always use the following – **should remain unchecked**
12. Click **OK** to continue.
13. The **Internet Connection, Step 2 window** opens. User name and password are not required fields. Click **Next**. You will receive two warning boxes asking if you want to continue with a blank user name and a blank password. Click **Yes** on both boxes.
14. The **Internet Connection, Step 3 window** opens. Enter a name for the connection, such as "*iR1200 Modem*". Click **Next**.
15. The Set **Up Your Internet Mail Account** window opens. Select **No (optional)** and click **Next**.
16. The **Completing the Internet Connection Wizard** window opens. Click **Finish**.

Modify Dial-up Connection Parameters

1. From the computer's desktop, double-click the **My Computer** icon. Then, double-click the **Control Panel** icon.

2. The **Control Panel** window opens. Double-click on the **Network and Dial-up Connections** icon.
3. The **Network and Dial-up Connections** window opens with the new iR1200 Modem icon inside.
4. Right-click on the **iR1200 Modem Connection** icon and select **Properties**.
5. The **iR1200 Modem** window opens. Select the **General** tab. In the **Phone number box**, erase the temporary phone number previously entered and replace it with either:
   - For Packet Data enter: **s=2**
   - For Circuit Switched Cellular enter: the **ISP phone number**
6. Click **OK**.

Modem Configuration – Windows XP

Install the Modem

1. Go to **Start à Settings à Control Panel** and click on the **Phone and Modem** options.
2. The **Phone and Modem Options** window opens. Click the **Modems** tab.
3. The **Modems** window opens. Click **Add**.
4. The **Install New Modem** window opens. Check the **Don't detect my modem; I will select if from a list box** then click **Next**.
5. The **Driver Selection** window opens. Under **Manufacturer**, select (**Standard Modem Types**). Under **Models**, click **Standard 19200 bps Modem**. Click **Next**.
6. The Port Selection window opens. Highlight the COM port that you will be using to connect to your modem (i.e., COM1, COM2, COM3, etc.). Click **Next**.
7. The modem installation is finished. The "**Your modem has been set up successfully**" window appears.
8. The **Phone and Modem Options** window opens. Click **OK** to continue.
9. The **Digital Signature Not Found** window opens. Click **Yes** to proceed.
10. The **Modem Installation Finish** window opens. Click **Finish**.
11. The Modems window reappears with the newly added Standard 19200 bps modem displayed in the dialog box. Click **OK**.

Create and Configure a Dial-up Networking Connection

1. From the computer's desktop, double-click the **My Computer** icon. Then, double-click the **Control Panel** icon.
2. The **Control Panel** window opens. Double-click on the **Network Connections** icon.
3. The **Network Connections** window opens. Double-click on **Create a New Connection**.
4. The **New Connections Wizard** window opens. Click **Next** to continue.
5. Select **Connect to the Internet** and click **Next**.
6. Select **Set up my connection manually** and click **Next**.
7. Select **Connect using a dial-up modem** and click **Next**.
8. Click in the **box next to the Standard 19200 bps modem** that was added previously. A check mark will be added. Remove the check mark next to all other modems listed and click **Next**.
9. The **Connection Name** window opens. Enter a name for the connection such as "iDEN Modem Connection" and click **Next**.

10. The **Phone Number to Dial** window opens. Enter **s=2** and click **Next**.
11. The **Internet Account Information** window opens. You can leave the username and password fields blank. Remove the check marks next to the three options.
    - Use this account name and password when anyone connects – **unchecked**
    - Make this the default Internet connection – **unchecked**
    - Turn on Internet Connection Firewall - **unchecked**
12. The **Completing the New Connection Wizard** screen opens. Click to select the option "**Add a Short to my desktop…**" and click **Next**.
13. The **iDEN® Modem Connection** window opens. Click the **Properties** button.
14. The **iDEN® Modem Connection Properties** window opens. On the **General** tab, verify that the Standard 19200 bps Modem is checked. All the other modems listed should be unchecked.
15. Click the **Networking** tab. Under the **PPP Windows 95/98… section** and click the **Settings** button. Verify the following settings:
    - Enable LCP Extensions – **unchecked**
    - Enable Software Compression Options – **unchecked**
    - Enable the Negotiate Multi-line for single... option – **checked**
16. Click **OK** to continue.
17. Click **Cancel** to close the **Connection** window.

Modem Profiles and Settings

This section describes how to use AT commands to setup parameters and configure the iR1200 modem for Normal mode usage. A HyperTerminal session must be setup for you to enter AT commands.

Opening a HyperTerminal Session

The following steps describe how to start a HyperTerminal Session:

1. **Windows 2000/XP/Windows 98**:
   Start **à** Programs **à** Accessories **à** Communications **à** HyperTerminal.
2. **Windows NT:**
   Start **à** Programs **à** Accessories **à** HyperTerminal **à** HyperTerminal
3. The HyperTerminal window will open. You are now ready to issue AT commands to the Modem.

Configuring with AT Commands

Changing Factory Default Image

The iR1200 modem's factory default image 2 is configured to start up with packet data. If you are using circuit switched data, we recommend that you perform the following steps.

Step 1 – Backup image 2 (default) to image 1

AT Command	Save User Default profile 2 to profile 1
Command Syntax	AT&W1
Expected Return Code(s)	OK

Step 2 – Change default call setting (packet data) to circuit switched

AT Command	Change Call Setting Parameter

Command Syntax	ATZ0
Expected Return Code(s)	OK

Step 3 – Save new setting as default profile.

AT Command	Save User Default Configuration
Command Syntax	AT&W2
Expected Return Code(s)	OK

Restore Factory Defaults [AT&F]

To ensure a clean configuration process, you should restore the current values to their factory default values by applying the following.

AT Command	Restore Factory-Default Configuration
Command Syntax	AT&F
Expected Return Code(s)	OK

Activate DTR Monitoring [AT&D2]

The DCE does not monitor the DTR line of the DTE/DCE physical connection. This is the default factory setting. To activate DTR monitoring in the DCE, you must apply the following command.

AT Command	DTR Behavior
Command Syntax	AT&D2
Expected Return Code(s)	OK

Activate DCD Management [AT&C1]

The factory default for the modem keeps the Data Carrier Detect (DCD) line of the computer-to-modem physical connection active at all times. Some communication programs monitor this line to determine the status of the connection. To promote compatibility with these programs, enable DCD management in the modem.

AT Command	DCD Behavior
Command Syntax	AT&C1
Expected Return Code(s)	OK

Select iDENâ Packet Wireless Data [AT+WS46=24]

The iR1200 modem supports multiple wireless data formats. Select the desired data service by applying the following command.

AT Command	Select WDS-side stack
Command Syntax	AT+WS46=24
Expected Return Code(s)	OK

Select SLIP [AT+WS45=3] or PPP [AT+WS45=4]

By default, the modem attempts to establish a PPP connection. To specify the type of connection the modem will establish, apply the following command.

AT Command	Select computer-side stack
Command Syntax	AT+WS45=4 (PPP) AT+WS45=3 (SLIP)
Expected Return Code(s)	OK

Header Compression [AT+ws182]

This command enables or disables TCP header compression options. Some DTE-side stacks (such as PPP) will negotiate local header compression independently from this setting. To disable header compression, apply this command.

AT Command	Header Compression
Command Syntax	AT+ws182=<header compression> AT+ws182? (?=Query parameter) AT+ws182=? (?=Range Parameter)
Parameter Value	**1** 0 = over the air and local header compression enabled. **2** 1 = over the air header compression enabled. **3** 2 = Local header compression enabled 3 = header compression disabled.
Expected Return Code(s)	OK

Saving AT Settings [AT&W]

Your modem is now properly configured for use with the iDEN® network. The iR1200 modem can store up to three profile or image. By default, image 2 is loaded when the modem is powered on. We recommend that you save this setting to the first profile/image.

AT Command	Save User Default Configuration
Command Syntax	AT&W1
Expected Return Code(s)	OK

IMPORTANT: These settings are stored on the modem's Random Access Memory (RAM) and are lost when the modem is turned off unless stored in the modem's non-volatile memory.

AT COMMAND REFERENCE

This chapter describes common AT commands that can be applied to the iR1200 modem. This chapter includes:

General AT Commands	Page 30
User Image Profile Commands	Page 30
Network Status Commands	Page 30
Other Useful Commands	Page 30

General AT Commands

Command	Usage	Action
AT	AT	Checks communication.
ATEx	ATE0 or ATE1	Sets echo on or off.
AT&V	AT&V	Displays modem parameters.
AT+IPR	AT+IPR = baud rate	Sets the modem's baud rate.

User Image Profile Commands

Command	Usage	Action
ATz	ATz0, ATz1, or ATz2	Sets the specified image as the active image.
AT&Wx	AT&W0, 1, or 2.	Writes active image to the specified profile

Network Status Commands

Command	Usage	Action
AT+WS53?	AT+WS53?	Checks Signal Quality
AT+WS50?	AT+WS50?	Check Signal Strength
AT+WPSTATE	AT+WPSTATE	Checks mobile IP registration
AT+WPNEI	AT+WPNEI	DTE IP Address

Other Useful AT Commands

The following tables outline other common AT commands for your reference.

Command Mode Echo [ATe]

The setting for this parameter determines whether or not the DCE echoes characters received from the DTE during command state and online command state.

Command	E
Action	ATe <echo>
Query	AT&v
Range	
Parameter Values:	0 = Disabled command mode character echo. 1 = Enabled command mode character echo.

Dial [ATd]

This command instructs the DCE to originate a call. When the DCE receives the dial string from the computer, all non-numeric characters in the Dial String that is not recognized dial-modifiers are ignored. This allows the DTE to request modem numbers containing unsupported dial modifiers, hyphens, parenthesis, and other punctuation.

Command	**D**
Action	ATd <Dial String>
Query	
Range	
Parameter Values (dial modifiers):	Dial string contains a modem number to be dialed, translated into an array of ASCII characters between 0 and 9 inclusive T = Allowed, but ignored by the modem. P = Allowed, but ignored by the modem. ! = Hook Flash (1/2 second). W = Wait for time specified in S7 for dial tone. (blank) = Wait for time specified in S7 for one or more rings followed by five seconds of silence before continuing execution of dial string. , = Pause for time specified in S8 ; = After dialing return to command mode.

Hang-up [ATh]

This command instructs the modem to terminate the active call.

Command	**H**
Action	ATh
Query	
Range	

Request Modem Information [ATi]

This command causes the modem to issue a string to provide product information.

Command	**I**
Action	ATi <request>
Query	
Range	
Parameter Values:	0 = OK Response code 1 = iDEN DTE/DCE Specification Version 2 = Software Model 3 = Product Model 4 = Product Manufacturer

Go Online [Ato]

This command causes the modem to enter the online state from the online command state.

Command	O
Action	Ato
Query	
Range	

Pulse Dialing [Atp]

This command selects pulse dialing. It is provided for compatibility purposes.

Command	P
Action	Atp
Query	
Range	

Quiet Mode [ATq]

This command controls whether or not the result codes are sent to the computer. If turned on, the Result Code Format and Extended Result code commands may further modify the result codes.

Command	Q
Action	ATq <setting>
Query	
Range	
Parameter Values:	0 = Result codes sent 1 = Result codes not sent

Tone Dialing [ATt]

This command selects DTMF dialing. It is provided for compatibility purposes and has no processing effect.

Command	T
Action	ATt
Query	
Range	

Verbose Result Codes [ATv]

This command sets your preference for the result code format. It allows the computer to select either Terse or Verbose result code formats.

Command	V
Action	ATv <setting>
Query	AT&v
Range	
Parameter Values:	0 = Numeric result code format 1 = Verbose result code format

Extended Result Codes [ATx]

This command provides an extended result code selection.

Command	X
Action	ATx <setting>
Query	AT&v
Range	
Parameter Values:	0, 1 = The modem does not return the BUSY or NO DIALTONE result codes. 2 = The modem might return the NO DIALTONE result code if appropriate, but does not return the BUSY result code. 3 = The modem may not return the BUSY result code, if appropriate, but does not return the NO DIALTONE result code. 4 = The modem may return either the BUSY or NO DIALTONE result code, if appropriate.

Restore User Defaults [Atz]

This command causes the modem to reset all parameters and S-registers to their user-defined default values. There are three sets of user defaults (or images). The parameter selects between which image is being requested.

Command	Z
Action	Atz <image>
Query	
Range	
Parameter Values:	0 = Local user image 0 1 = Local user image 1 2 – Local user image 2

DCD Behavior [AT&c]

This parameter determines how the DCD line relates to the detection of received line signals from the distant end.

Changing the parameter takes effect immediately in both the command and online command states.

Command	&C
Action	AT&c <setting>
Query	AT&v
Range	
Parameter Values:	0 = DCD always on 1 = The modem turns on the DCD to indicate the presence of a connection, and turns off the DCD to indicate the loss of connection.

DTR Behavior [AT&d]

This parameter determines how the computer responds when the DTR line is changed from the ON condition to the OFF condition during the online data state.

Command	&D
Action	AT&d <setting>
Query	AT&v
Range	
Parameter Values:	0 = Modem ignores DTR 1 = If the DTR is turned ON while in online data mode, the mode returns the command mode and issues the OK result code. The call remains connected. 2 = If the DTR is turned OFF while in online data mode, the modem disconnects the call and returns the OK result code. If DTR is OFF while in command mode, the modem will not answer an incoming call, regardless of the setting, S0 (automatic answer).

Restore Factory Default [AT&f]

This command causes the modem to reset all parameters and S-registers to their factory defined default value. The optional parameter value, if present must be 0.

Command	&F
Action	AT&f <setting>
Query	AT&v
Range	

Local Flow Control (Traditional) [AT&k]

This parameter selects the type of flow control used between the computer and the modem while in data transfer mode. This command is supported for backward compatibility purposes. This command sets the method of flow control for both directions of the computer-to-modem interface, while the +IFC command allows for a separate setting for each direction.

The setting for this command may implicitly alter the settings of the +IFC command.

Command	&K
Action	AT&k =<setting>
Query	
Range	
Parameter Values:	0 = No Flow Control (not recommended) 3 = RTS/CTS Flow Control. 4 = XON/XOFF Flow Control.

Display Current Parameter Value [AT&fv]

This command allows the computer to view the parameter and S-register settings for the active configuration profile.

Command	&V
Action	AT&fv <setting>
Query	
Range	

Local Character Framing [AT+icf]

This parameter determines the local serial port asynchronous data framing. The second parameter is needed only if you select fewer than eight data bits.

Command	&ICF
Action	AT+icf=
Query	AT+icf?
Range	AT+icf?
Framing Parameter Values:	0 = AutoDetect 3 = 8 data bits, 1 stop bit 5 = 7 data bits, 1 parity bit, 1 stop bit
Parity Parameter Values:	0 = Odd 1 = Even 2 = Mark 3 = Space

Local Flow Control (PCCA) [AT+ifc]

This extended compound parameter controls, the local flow control between the computer and the modem. The two numeric sub-parameters are DCE_by_ DTE (which controls the data format he modem) and DTE_by_DCE (which controls the data from the computer).

NOTE: To change the setting of these parameters, use the &K command.

Command	+IFC
Action	AT+ifc= <DCE_by_DTE>, <DTE_by_DCE>
Query	AT+ifc?
Range	AT+ifc=?
DCE_by_DTE Parameter Values:	0 = No flow control was set by DTE. 1 = XON/XOFF; do not pass XON/XOFF characters to the remote DCE. 2 = RFR active/inactive flow control 3 = XON/XOFF; Pass DC1/DC3 characters to the remote DCE in addition to acting upon local flow control.
DTE_by_DCE Parameter Values:	0 = No flow control was set by DTE. 1 = XON/XOFF flow control 2 = CTS/RFS active/inactive flow control

Local Data Rate [AT+ipr]

This numeric extended-format parameter specifies the data rate between the DTE and the DCE.

Command	+IPR
Action	AT+ipr=<rate>
Query	AT+ipr?
Range	AT+ipr=??
Parameter Values:	0 = Automatic detection on baud rate, data framing 300 = Transmission speed in bits per second. 2400 = Transmission speed in bits per second. 4800 = Transmission speed in bits per second. 9600 = Transmission speed in bits per second. 19200 = Transmission speed in bits per second. 38400 = Transmission speed in bits per second. 57600 = Transmission speed in bits per second. 115200 = Transmission speed in bits per second.

Lock/Unlock the DCE [AT+wclk]

When the DCE is locked, communication over the serial port to the modem is suspended.

NOTE: If the PIN was removed (by setting its value to the empty string (" "), the DTE must still specify the PIN, represented by the empty string.

Command	+WLCK
Action	AT+wclk=<LockStatus>, <PIN>
Query	
Range	AT+WCLK=?
Parameter Values – Lock Status:	0 = Unlock the DCE 1 = Lock the DCE
	PIN A PIN is stored as a series of alphanumeric characters, with a maximum length of 8 characters. If more than 8 characters are set as a PIN, only the first 8 are recognized.

Change the DCE's PIN [AT+wcpn]

This command sets the PIN that locks or unlocks the DCE.

NOTE: You must specify the desired PIN, as well as the current PIN. The factory-default PIN is the "empty string" or a value of " ".

Command	+WCPN
Action	AT+wcpn=<newPIN>, <oldPIN>
Query	
Range	AT+wcpn=?

Parameter Values:	A PIN is stored as a series of alphanumeric characters, with a maximum length of 8 characters. If more than 8 characters are set as a PIN, only the first 8 are recognized.

Packet Data Sleep Timer [AT+ws175]

This timer controls the length of time the DCE stays on a packet channel though no traffic is actively being transferred.

Command	**+WS175**
Action	AT+ws175=
Query	AT+ws175?
Range	AT+ws175=?
Parameter Values:	0 = Disable sleep timer 5-255 = Seconds before sleeping 10 = Default value

SLIP MTU [AT+wv312]

This setting specifies the Maximum Transmitted Unit used by SLIP connections. (PPP Connections negotiates this value).

Command	**+WV312**
Action	AT+wv312=<MTU>
Query	AT+wv312?
Range	AT+wv312=?
Parameter Values:	68-1500 = MTU Value Range 1006 = Default Value

Select Mobile IP Client [AT+wv300]

This parameter activates/deactivates the Mobile Node client in the DCE. The mobile host can operate in two modes to access the iDEN® packet data network.

Command	**+WV300**
Action	AT+wv300=<MIP Mode>
Query	AT+wv300?
Range	AT+wv300=?
Parameter Values:	0 = Activate Mobile Node in DCE. 1 = Deactivate Mobile Node in DCE.

Mobile IP Authentication Key [AT+wv301]

The iDEN® network uses the MIP Authentication Key to verify the authenticity of the DCE with the Home Agent. The DCE and the Home Agent must have identical values for this shared secret key for the DCE to satisfy the authentication process.

NOTE: This command is applicable only when the Mobile IP Client in the DCE is activated.

Command	**+WV301**
Action	AT+wv301<"key">
Query	

Range	AT+wv301=?
Parameter Values:	The authentication Key parameter is a text string of up to 32 characters. Unlike most text-string parameters, the Authentication key is a text representation of a hexadecimal number. Therefore, only the characters 0-9 and A-F are acceptable. (The lower case character, a-f is also acceptable). **NOTE: Although the parameter represents a numeric value, the parameter is actually a text string, so the parameter must be enclosed in quotation marks.**

Mobile IP Session Timer [AT+wv302]

The command determines the maximum amount of time that a remote node can be registered with its Home Agent before having to renew its registration. This parameter sets a user preference for a value that is negotiated within the network. During the negotiation process, the user preference may be overruled by the network without notification.

Command	**+WV302**
Action	AT+wv302=<timer>
Query	AT+wv302?
Range	AT+wv302=?
Parameter Values:	1800-65534 = Second before expiration 65535 = Timer never expires 7200 = Default value

DTE IP Address Prefix Length [AT+wv311]

The prefix-length is the number of contiguous bits in an IP address that makes up the network prefix (or network number plus subnet number) of the IP address.

NOTE: This command sets the prefix length of the Mobile Node's IP address, as specified by +WPNEI.

Command	**+WV311**
Action	AT+wv311=
Query	AT+wv311?
Range	AT+wv311=?
Parameter Values:	2-24 = Prefix length 2 = Default value

DTE Stack [AT+ws45]

This command sets the protocol for communication between the DEC and the DTE. Circuit-switched data connections allow only the transparent character stream for packet data connections; use SLIP or CSLIP or PPP.

Command	**+WS45**
Action	AT+ws45=
Query	AT+ws45?
Range	AT+ws45=?

Parameter Values:	0 = Transparent Character Stream 1 = Reliable Transparent Character Stream (TMOL) 3= SLIP/CSLIP 4 = PPP

WDS Stack [AT+ws46]

This command changes the data mode of the modem between circuit-switched data and packet data.

Command	**+WS46**
Action	AT+ws46=
Query	AT+ws46?
Range	AT+ws46=?
Parameter Values:	23 = iDEN Circuit-switched data/fax 24 = iDEN packet data 252 = Local Data Services

Service Class [AT+fclass]

This command switches between normal circuit-switched data mode and Class 2 fax mode. This setting has no effect during the packet data service.

Command	**+FCLASS**
Action	AT+fclass=
Query	AT+fclass?
Range	AT+fclass=?
Parameter Values:	0 = Class 0 operation (modem operation) 2 = Class 2 operation (fax operation) 8 = Class 8 (voice operation – while tethered)

Packet Data Registration Timeout [AT+ws198]

This command allows the DTE to specify a maximum amount of time to wait for packet data operation.

Command	**+WS198**
Action	AT+ws198=
Query	AT+ws198?
Range	AT+ws198=?
Parameter Values:	1-255 = Seconds 30 = Default value

Circuit Data Auto-Answer [ATs0]

This command determines if and when the DCE should automatically answer an incoming call.

Command	**S0**
Action	ATs0=
Query	ATs0?

Range	ATs0=?
Parameter Values:	0 = Do not automatically answer incoming calls 1-255 = Answer after specified number of rings

Circuit Data Establishment Timeout [ATs7]

This command allows the DTE to specify the maximum amount of time between a request for a circuit data connection and the establishment of this connection.

Command	**S7**
Action	ATs7=
Query	ATs7?
Range	ATs7=?
Parameter Values:	1-255 = Seconds 30 = Default value

Comma Dial Modifier Timer [ATs8]

This command allows the DTE to set the duration of the pause associated with a comma (,) dial modifier.

Command	**S8**
Action	ATs8=
Query	ATs8?
Range	ATs8=?
Parameter Values:	0-255 = Seconds 2 = Default value

Circuit Data Idle Timer [ATs30]

This command specifies an idle line timeout for online data mode. If no data is sent by the DTE on the transmit data line for the specified period of time, the DCE disconnects the call, returns the OK result code, and returns to command mode.

Command	**S30**
Action	ATs30=
Query	ATs30?
Range	ATs30=?
Parameter Values:	0-255 = Seconds 0 = Default value

S-REGISTERS

In this chapter, you are will learn about S-registers and how to configure registers for your iR1200 modem. This chapter includes:

S-Register	Page 41
Programming S-Register	Page 41
Reading S-Register	Page 41
Supported S-Register	Page 42

S-Registers

S-registers are memory locations in the modem that you can program to meet your communication needs. S-register parameters are numbered from 0 (zero) to 255. Since many of the registers are reserved for internal operation purposes, you are allowed to customize only a subset of the modem's register.

Programming the S-Register

The following table describes the steps to program an S-Register.

1. From the command mode of your communication software, type **ATSn=x** where **n** is the number of the S-register you wish to customize and **x** is the value that you wish to assign to that register.
2. Press **ENTER** to execute the command.

You may experience undesirable consequences if you modify the S7 or S10 registers from their set default values. For optimal performance, it is recommended that you use the default values set for these two registers. If you write to an S-register that is not programmable or if the value you assigned is invalid, the modem will still return an OK message to the computer screen. The attempted changes will not affect the S-register values.

Reading an S-Register Value

The following table describes how to read a value for an S-Register.

1. From the command mode, type **ATSn** (n= the number of the S-register that you want to read) and press **ENTER**.
2. The value of the requested S-register displays.

NOTE: If you attempt to read the value of an S-register that is not supported, the modem will display an ERROR message.

Supported S-Registers

The following table outlines the list of S-Registers that can be used to customize your modem.

Register #	Function
0	Automatic Answer. Determines if the modem automatically answers incoming calls. • If the value assigned to this register is 0 (zero), the modem does not answer the call but sends an appropriate message to the computer that commands the modem to answer the call. • If the value assigned to this register is a non-zero, the modem answers the call without waiting for the computer to issue its answer-call command. Valid value ranges from 0 (zero) to 255. 0 (zero) is the default value.
2	Escape (ESC) Code Character. Specifies the ASCII character to be used to escape from either data or online mode to command mode. Valid value ranges from 0 (zero) to 127. 43 or the ASCII plus (+) key is the default value.
3	Command Line Terminating Character. Specifies the ASCII character to be used to terminate a command line without carrying out any command that might be issued. Valid value ranges from 0 (zero) to 127. 13 (which represents the ENTER (PC Compatible) or RETURN (Macintosh) key) is the default value.
4	Response Format Character. Valid value ranges from 0 (zero) to 127. 10 is the default value.
5	Command Line Editing Character. Valid value ranges from 0 (zero) to 127. 8 (representing the Backspace key) is the default value.
6	Pause Before Blind Dialing. Valid value ranges from 2 to 10. 2 (seconds) is the default value.
7	Connection Completion Timeout. Valid value ranges from 0 (zero) to 255 seconds. 120 (seconds) is the default value.
8	Command Dial Modifier Time. Valid value ranges from 0 (zero) to 255 seconds. 2 (seconds) is the default value.
10	Automatic Disconnect Delay. Determines the amount of time between loss of carrier and disconnection of the data call. Valid value ranges from 1 to 254 tenths of a second. 14 (1.4 seconds) is the default value.
12	Escape Code Timer. Determines the time duration within which the escape code must be sent by the computer to escape from online command mode. The time (in seconds) the modem waits is determined by dividing the specific register value by 50. Valid value ranges from 20 to 255. 50 or 1 second (50/50) is the default value.
30	Idle Timeout. Determines the amount of time that the modem waits in online mode for a command from the computer before disconnecting the call and returning to command mode. Valid value ranges from 0 (zero) to 255 seconds. 0 (infinite time period) is the default value.

TROUBLESHOOTING

This chapter describes typical configuration problems and provides instructions on how to troubleshoot issues with the iR1200 modem.

Common Problems	Page 43
Error Messages	Page 44
Diagnostic Commands	Page 45
Extended AT Command	Page 45
Extended Error Result Codes	Page 45

Common Problems

The following table identifies the most common problems that may occur while setting up and using your modem for data calls.

IMPORTANT INFORMATION: Customers cannot ping a Non Routable IP address when provisioned due to the NAT (Network Address Translator) Server. This server attaches a Class C Public IP Address to a Private Class A Non Routable IP address for a specific period of time to browse the public internet. This Class C address is needed in order to route on the public internet, as Non-Routable IPs are for internal routing only (Intranet).

Symptom	Troubleshooting Tips
The modem does not respond to AT commands.	Make sure that: • The modem is powered on. • The cable is properly connected to the modem. • The cable is connected to the correct port. • The correct port is specified in your communication software. • The modem is set to the same baud rate specified in the communication software.
The NO CARRIER message displays when the modem attempts data calls.	Make sure that the S7 register contains a value greater than or equal to 60 by issuing an AT&V command or by explicitly setting ATS7=’x’ (where x is, enter any number between 1 and 255).
Modem does not auto-answer incoming data calls (not default operation).	Make sure that the S0 register contains a value other than 0 (zero) by issuing the AT&V command. You can also explicitly set ATS0=x from the software’s command mode (where x is any number between 1 and 255).
Received data is unrecognizable.	Make sure that the flow control is set to RTS/CTS (hardware flow control is enabled) in the communication software and is set to &K3.
Data is being intermittently lost.	Make sure that the flow control is set to RTS/CTS (hardware flow control is enabled) in the communication software and is set to &K3.
Modem seems to respond slower than usual.	Check the signal strength icon to be sure the signal is not weak.
Modem keeps dropping connection.	Check the signal strength and signal quality icon to be sure the signal is not weak or poor.

Symptom	Troubleshooting Tips
Modem does not respond to hang-up command from the software's command mode.	Make sure that: • The Drop DTR on Hang-up is enabled in the communication software. • The hang-up string setting is '+++ATH'.
Computer screen appears distorted.	Turn off Auto Baud by initiating AT+IPR command. Make sure that the baud rate setting in your communication software matches the baud rate setting of the modem.
No characters are displayed on the computer screen	Turn on Local Echo by initiating the ATE1 command.
Images transmitted/received are of poor quality.	Ensure that the RTS/CTS flow control is enabled in the communication software and is set to &K3.

Error Messages

The following table outlines error messages that you may receive when sending or receiving data. These error messages will appear on the computer screen

Message	Explanation
NO CARRIER	Your connection was terminated, or an attempt to establish the connection failed. Try your call again and contact your iDEN® carrier.
ERROR	• The command was not recognized. • The command line maximum length was exceeded. • An invalid parameter was entered. • The command line is ready for another command. Make sure that the command (and parameter) that you entered are valid.
BUSY	The number you called is busy. You should try the call again later. The modem is ready to accept another command.
MODEM INITIALIZATION FAILED	Your communication software assumes that Auto Baud is supported by the modem. Make sure that: • That the baud rate = 19200 bps. • If Auto Baud is turned on in the software, it must be turned on in the programming menu of your modem.

Diagnostic Commands

If a data connection could not be established, you might be able to determine the cause through the AT command interface. The following steps describe how to obtain modem or system information that will help you with configuration or communication problems.

1. Close all data applications. These applications may start a retry command that will interfere with your troubleshooting efforts.
2. Unplug and reconnect the data cable. This will terminate any ongoing data connections.
3. Establish basic computer to modem communication.
4. Administer the following AT command to query for the last "Extended Error Code".

Extended Error AT Command

AT Command	Return Product Information
Command Syntax	AT+CEER
Expected Return Code(s)	See Extended Error Result Codes Table

Extended Error Result Codes

Extended error result codes report the network reason why a data connection failed. If you report a failed connection to the TELUS' Customer Care, be sure to provide the error result code.

Code	General Description
General Modem Operation	
257	No further information is available
259	A command was issued during an improper state.
260	User aborted the connection.
261	DCE does not recognize an AT command.
262	Connection was aborted due to connection timeout.
263	Parameters for an AT Command are out of range.
266	The +FCLASS command failed due to incompatibilities with the current setting of the +WS46 command.
267	The +WS45 command failed due to incompatibilities with the value of the +WS46 command.
268	Invalid DTE-IP address was specified (+WPNEI).
269	Invalid Home Agent address was specified (+WV305)
270	Invalid MIP Security Parameter index was specified.
271	DCE IP address matched Home Agent IP Address (+WV304, +WV305).
272	The DTE tried to lock or unlock the DCE using an incorrect PIN.
275	An AT Command is not compatible with the current/active data service.
Packet Data Operation	
519	Requested level of encryption is not allowed.
545	Service is not present.
612	A data registration error was found. Contact your service Provider.
833	FA: Mobile Node Administrative is prohibited form registration.
835	FA: Mobile Node Authentication failed.
836	FA: Home Agent Authentication failed.
897	HA: Mobile Node Administratively is prohibited from registration.
899	HA: Mobile Node Authentication failed.
900	HA: Foreign Agent Authentication failed.
1025	SLIP/PPP failed to respond.
1026	SLIP/PP failed to configure the connection.
1027	SLIP/PPP link terminated.
Circuit Data Operation	
1280	No information is available.
1290	Unspecified Transmit Phase A Error.
1300	Unspecified Transmit Phase B Error.

Code	General Description
1320	Unspecified Transmit Phase C Error.
1330	Unspecified Transmit Phase D Error.
1350	Unspecified Receive Phase B Error.
1360	Unspecified Receive Phase C Error.
1370	Unspecified Receive Phase D Error.
Network Error Codes	
1558	No route to specified transit network.
1539	No route to destination.
1553	Called unit is busy.
1563	Destination is out of order.
1564	Invalid number format – incomplete.
1570	No circuit/channel is available.
1574	Network is out of order.
1577	Temporary failure.
1578	Switching equipment congestion.
1580	Requested circuit/channel is not available.
1583	Resource is unavailable.
1594	Bearer capability is not presently available.
1593	Bearer capability is not authorized.
1599	Service or option is not available.
1601	Bearer service is not implemented.
1602	Channel type is not implemented.
1615	Service or option is not implemented
1624	Incompatible destination.

SAFETY NOTICE

The following is important information for the safe and efficient operation of the iR1200 modem. We recommend that all users read this information before using the modem.

Safe and Efficient Operation Guidelines

Your modem contains a transmitter and receiver. When it is ON, it receives and transmits radio frequency (RF) energy. The modem operates in the frequency range of 806 MHz to 870 MHz and utilizes the digital modulation techniques. This product is authorized by FCC Rule Part 47CFR2.989 (b) which states that it should be used in such a way that it maintains a distance of at least 8 inches (20 cms) between the human body and the radio's antenna or modem. When you use your modem, the system handling your call controls the power level at which your modem transmits. The output power level typically may vary over a range from 0 mW to700 mW.

Exposure to Radio Frequency Energy

Your modem is designed to comply with the United States Federal Communications Commission, Code of Federal Regulations; FCC part 90-sub part S, and FCC-part 15, Class B. The modem is in compliance with FCC's national standards and guidelines regarding exposure of human beings to radio frequency electromagnetic energy.

Medical and Personal Electronic Devices

Most electronic equipment are protected from RF energy. However, certain equipment may not be shielded against the RF signals being emitted from your modem.

Pacemakers

Operators should not use the modem if individuals with pacemakers are within 6 inches (0.15 meters) of the antenna.

Hearing Aids

The modem may cause interference with hearing aid devices. Individuals who experience such interference should consult the hearing aid manufacturer to discuss alternative solutions.

Other Medical Devices

Individuals who have other medical devices not specifically mentioned in this safety notice may want to consult their physician or the manufacturer of the device to determine if it is adequately protected from external RF energy.

Interference with Other Electronic Devices

RF energy may affect improperly installed or inadequately protected electronic operating and entertainment systems in motor vehicles. Check with the manufacturer or representative to determine if these systems are adequately shielded from external RF energy. It is recommended that you also check with the manufacturer of any equipment that has been added to the vehicle.

INDEX

C

Circuit data.....*5*
Coverage.....*3*
Customer Care *4*

D

Data Account Activation.....*4*
data packet applet.....11, 14, 16
DCD 28, 33
DCE..... 28, 30, 31, 35, 36, 37, 39, 40, 45
DTE..... 28, 29, 30, 31, 35, 36, 38, 39, 40, 45
DTR.....28, 34, 44

E

Electronic Devices.....*47*

G

GPS *5*

H

Hearing Aids.....*47*

I

iDEN® *5*
images 33

M

Mobile IP 37, 38

P

Pacemakers *47*
Packet Data.....*5*
PIN 36, 37, 45
PPP.....28, 29, 37, 38, 39, 45
processor.....*11*
profile 29, 30, 35

R

Radio Frequency *47*
RAM.....*11*

S

SLIP 28, 37, 38, 39, 45